

IN THE CLAIMS:

Please cancel Claims 37 to 45 without prejudice or disclaimer of subject matter.

1. to 45. (Cancelled).

46. (Previously Presented) An image processing apparatus connectable to an external device that can transmit printing data and to an original-reading device which generates reproduction image data by reading an original image, said image processing apparatus employing an image forming device which forms an image on a sheet, said image processing apparatus comprising:

an engine controller for controlling the image forming device based on image data;

a printer controller for forming print image data from the printing data transferred from the external apparatus, for transmitting the print image data to said engine controller, and for transmitting a command for setting an operation of said engine controller to said engine controller;

a reader controller for receiving the reproduction image data generated by the original-reading device, and for transmitting the reproduction image data to said engine controller; and

holding means for holding the command if the command is transmitted from said printer controller while said reader controller is transmitting the reproduction image

data to said engine controller, and for transmitting the held command to said engine controller after said reader controller completes transmitting the reproduction image data to said engine controller.

47. (Previously Presented) The apparatus according to claim 46, wherein said holding means holds the command while said reader controller is transmitting the reproduction image data if the command causes a change in a load of the image forming device.

48. (Previously Presented) Currently Amended) A controller for an image forming apparatus connectable to an external apparatus and to an original-reading device which outputs reproduction image data formed by reading an original image, the image forming apparatus employing an image forming device for forming an image on a sheet, a printer controller which outputs (i) print image data formed from printing data transferred from the external apparatus and (ii) a command for setting an operation of the image forming device, and an engine controller which controls the image forming device based on the reproduction image data output by the original-reading device and the command and the print image data output by the printer controller, said controller comprising:

first reception means for receiving the reproduction image data output by the original-reading device;

second reception means for receiving the command and the print image data output by the printer controller;

selection means for selecting one of the reproduction image data received by said first reception means and the print image data received by said second reception means, and for transmitting the selected image data to the engine controller which controls the image forming device based on the selected image data; and

holding means for holding the command if the command is received by said second reception means while the reproduction image data received by said first reception means is being transmitted to the engine controller, and for transmitting the held command to the engine controller after completion of the transmitting of the reproduction image data to the engine controller.

49. (Previously Presented) The apparatus according to claim 47, wherein said holding means holds the command while the reproduction image data is being transmitted if the command causes a change in a load of the image forming device.

50. (Previously Presented) A method of controlling an image forming apparatus, by controlling a reader controller which controls an original-reading device which outputs reproduction image data by reading an image of an original, the image forming apparatus being connected to an external apparatus and employing an image forming device for forming an image on a sheet, a printer controller which outputs (i) print image data formed from printing data transferred from the external apparatus and (ii) a command for setting an operation of the image forming device, and an engine controller which controls the image forming device based on the reproduction image data output by

the original-reading device and the command and the print image data output by the printer controller, said method comprising the steps of:

a first reception step of receiving the reproduction image data output by the original-reading device;

a second reception step of receiving the command and the print image data output by the printer controller;

a selecting step of selecting one of the reproduction image data received from the original-reading device and the print image data received from the printer controller and transmitting the selected image data to the engine controller which controls the image forming device based on the selected image data;

a holding step of holding the command if the command is received from the printer controller while the reproduction image data received from the original-reading device is being transmitted to the engine controller; and

a transmitting step of transmitting the held command to the engine controller after completion of the transmitting of the reproduction image data to the engine controller.

51. (Previously Presented) The method according to claim 50, wherein the command is held in said holding step if the command causes a change in a load of the image forming device.

52. to 57. (Cancelled)

58. (Previously Presented) An image processing apparatus usable with an external device that can transmit printing data, said image processing apparatus comprising:

an original-reading device which reads an original image and outputs reproduction image data based on the read original image;

a printer;

an engine controller connected to said printer, controlling said printer based on received image data, and outputting a first state signal indicating a condition of said printer;

a reader controller connected to said original-reading device and said engine controller, said reader controller receiving the reproduction image data output by said original-reading device, transmitting the reproduction image data to said engine controller, and receiving the first state signal output by said engine controller; and

a printer controller connected to said reader controller and connectable to the external device, said printer controller receiving the printing data transmitted from the external apparatus, forming print image data from the printing data, and transmitting the print image data to said engine controller via said reader controller,

said reader controller further comprising:

a first input port connected to the original-reading device, for receiving the reproduction image data;

a second input port connected to the printer controller, for receiving the print image data;

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a third input port connected to the engine controller for receiving the first state signal;

a selector connected to the engine controller, for selecting one of the reproduction image data received via said first input port and the print image data received via said second input port, and for relaying the selected image data to the engine controller;

a transmitting unit connected to the printer controller, for selectively transmitting to the printer controller a second state signal indicating the condition of the printer; and

a processor connected to the transmitting unit and to the selector, for controlling the selective transmission of the second state signal by said transmitting unit, in accordance with a content of the state signal output by the engine controller, and for controlling the selection of the selected image data by said selector.

59. (Previously Presented) The apparatus according to claim 58, wherein said processor controls the selective transmission of the second state signal by said transmitting unit in accordance with which of the reproduction image data and the print image data has been selected by said selector for relaying to said engine controller.

60. (Previously Presented) The apparatus according to claim 58, wherein the condition indicated by the first and second state signals is a change in a state of the printer.

61. (Previously Presented) A controller for an image forming apparatus connectable to an external apparatus, the image forming apparatus employing a printer, an original-reading device which reads an original image and outputs reproduction image data based on the original image, a printer controller which receives printing data transferred from the external apparatus and outputs print image data based on the printing data, and an engine controller which controls the printer based on the reproduction image data and the print image data and which outputs a first state signal indicating a condition of the printer, said controller comprising:

a first input port connected to the original-reading device, for receiving the reproduction image data;

a second input port connected to the printer controller, for receiving the print image data;

a third input port connected to the engine controller for receiving the first state signal;

a selector connected to the engine controller, for selecting one of the reproduction image data received via said first input port and the print image data received via said second input port, and for relaying the selected image data to the engine controller;

transmitting means connected to the printer controller, for selectively transmitting to the printer controller a second state signal indicating the condition of the printer; and

a processor connected to the transmitting means and the selector, for controlling the selective transmission of the second state signal by said transmitting means,

in accordance with a content of the state signal output by the engine controller, and for controlling the selection of the selected image data by said selector.

62. (Previously Presented) The controller according to claim 61, wherein said processor controls the selective transmission by said transmitting means also in accordance with a source of the selected image data.

( 63. (Previously Presented) The controller according to claim 61, wherein the condition indicated by the state signals is a change in a state of the printer.

64. (Previously Presented) A control method for an image forming apparatus connected to an external apparatus, the image forming apparatus employing a printer, an original-reading device which reads an original image and outputs reproduction image data based on the original image, a printer controller which receives printing data transferred from the external apparatus and outputs print image data based on the printing data, and an engine controller which controls the printer based on the reproduction image data and the print image data and which outputs a first state signal indicating a condition of the printer, said method comprising the steps of:

- receiving the reproduction image data from the original-reading device;
- receiving the print image data from the printer controller;
- receiving the first state signal from the engine controller;

selecting one of the received reproduction image data and the received print image data;

relaying the selected image data to the engine controller; and

selectively transmitting a second state signal, indicating the condition of the image forming device, to the printer controller in accordance with a content of the received first state signal.

65. (Previously Presented) The method according to claim 64, wherein in said selectively transmitting step the second state signal is selectively transmitted to the printer controller also in accordance with a source of the selected image data.

66. (Previously Presented) The method according to claim 64, wherein the condition indicated by the state signals is a change in a state of the printer.

67. (Previously Presented) An image processing apparatus connectable to an external device that can transmit printing data, said image processing apparatus comprising:

a printer;

an original-reading device which outputs reproduction image data by reading an image of an original;

a printer controller for receiving the printing data transmitted by the external apparatus, forming print image data based on the printing data, outputting the print image data, and outputting a command for setting a printer operation;

an engine controller for controlling said printer based on the command, the reproduction image data and the print image data; and

a reader controller connected to said engine controller, said original-reading device and said printer controller, said reader controller receiving and relaying the reproduction image data, the print image data and the command to said engine controller,

said reader controller including a buffer in which the command is held if the command is output by said printer controller while said reader controller is relaying the reproduction image data to said engine controller, said reader controller transmitting the held command to said engine controller after said reader controller completes relaying the reproduction image data to said engine controller.

68. (Previously Presented) The apparatus according to claim 67, wherein the command is held in said buffer while said reader controller is relaying the reproduction image data only if the command causes a change in a load of said printer.

69. (Previously Presented) A controller for an image forming apparatus connectable to an external apparatus, the image forming apparatus employing a printer, an original-reading device which reads an original image and outputs reproduction image data based on the original image, a printer controller which receives printing data from the

external apparatus and outputs (i) print image data based on the printing data and (ii) a command for setting a printer operation, and an engine controller which controls the printer based on the command, the reproduction image data and the print image data, said controller comprising:

a first input port connected to the original-reading device, for receiving the reproduction image data from the original-reading device;

a second input port connected to the printer controller, for receiving the print image data and the command from the printer controller;

a selector for selecting one of the reproduction image data received via said first input port and the print image data received via said second input port and relaying the selected image data to the engine controller;

a buffer in which the command is selectively stored; and

a processor which selectively stores the command in the buffer if the command is received via said second input port while said selector is relaying the reproduction image data to the engine controller, and which transmits the stored command to the engine controller after said selector completes relaying the reproduction image data to the engine controller.

70. (Previously Presented) The apparatus according to claim 69, wherein said processor stores the command in the buffer while said selector is relaying the reproduction image data only if the command causes a change in a load of the printer.

71. (Previously Presented) A method of controlling an image forming apparatus connected to an external apparatus, the image forming apparatus employing a printer, an original-reading device which reads an original image and outputs reproduction image data based on the original image, a printer controller which receives printing data from the external apparatus and outputs (i) print image data based on the printing data and (ii) a command for setting a printer operation, and an engine controller which controls the printer based on the command, the reproduction image data and the print image data, said method comprising the steps of:

- receiving the reproduction image data from the original-reading device;
- receiving the print image data from the printer controller;
- receiving the command from the printer controller;
- selecting one of the received reproduction image data and the received print image data;
- relaying the selected image data to the engine controller;
- holding the received command if the command is received while the received reproduction image data is being relayed to the engine controller; and
- transmitting the held command to the engine controller after the received reproduction image data has been relayed to the engine controller.

72. (Previously Presented) The method according to claim 71, wherein the command is held in said holding step only if the command causes a change in a load of the printer.

73. (Previously Presented) An image processing apparatus connectable to an external device that can transmit printing data, said image processing apparatus comprising:

a printer;

an engine controller connected to the printer, controlling the printer based on image data, and outputting a data transmission synchronization signal;

a printer controller connectable to the external device, for receiving the printing data, forming print image data from the printing data, and outputting the print image data in response to the data transmission synchronization signal from said engine controller;

an original-reading device which outputs reproduction image data by reading an image of an original in response to the data transmission synchronization signal from said engine controller; and

a reader controller connected to said engine controller, said original reading device and said printer controller,

said reader controller further comprising:

a first input port connected to the original-reading device for receiving the reproduction image data from the original-reading device;

a second input port connected to the printer controller for receiving the print image data from the printer controller;

a third input port connected to the engine controller for receiving the data transmission synchronization signal from the engine controller;

a selector connected to the engine controller, for selecting one of the reproduction image data received via said first input port and the print image data received via said second input port, and for relaying the selected image data to the engine controller;

a gate for selectively transmitting the data transmission synchronization signal received from the engine controller to said printer controller; and

a processor for controlling said original-reading device in accordance with the data transmissions synchronization signal, and for controlling said gate to transmit the data transmissions synchronization signal to said printer controller when said selector selects to relay the print image data to the engine controller.

74. (Previously Presented) The apparatus according to claim 73, wherein when there is a request to transmit the reproduction image data from said original-reading device to said engine controller while the print image data from said printer controller is being transmitted to said engine controller, said reader controller interrupts transmission of the data transmission synchronization signal to said printer controller and utilizes the data transmission synchronization signal to control said original-reading device.

75. (Previously Presented) A reader controller for controlling an image forming apparatus connectable to an external apparatus that can transmit printing data, the image forming apparatus employing a printer, an engine controller which controls the

printer based on image data and outputs a data transmission synchronization signal, and a printer controller which forms print image data from the printing data transferred from the external signal, the image forming apparatus being connectable to an original-reading device which outputs reproduction image data by reading an image of an original in response to the data transmission synchronization signal, said reader controller comprising:

- a first input port connected to the original-reading device for receiving the reproduction image data from the original-reading device;

- a second input port connected to the printer controller for receiving the print image data from the printer controller;

- a third input port connected to the engine controller for receiving the data transmission synchronization signal from the engine controller;

- a selector connected to the engine controller, for selecting one of the reproduction image data received via said first input port and the print image data received via said second input port and relaying the selected image data to the engine controller;

- a gate for selectively transmitting the data transmission synchronization signal received from the engine controller to said printer controller; and

- a processor for controlling said original-reading device in accordance with the data transmission synchronization signal and for controlling said gate to transmit the data transmission synchronization signal to said printer controller when the print image data is to be transmitted to the engine controller.

76. (Previously Presented) The apparatus according to claim 75, wherein when there is a request to transmit the reproduction image data from the original-reading device to the engine controller while the print image data from the printer controller is being transmitted to the engine controller, said processor controls the gate to interrupt the transmission of the data transmission synchronization signal to the printer controller and utilizes the data transmission synchronization signal to control the original-reading device.

77. (Previously Presented) A control method for an image forming apparatus connectable to an external apparatus that can transmit printing data, the image forming apparatus employing a printer for forming an image on a sheet, an engine controller which controls the printer based on image data and outputs a data transmission synchronization signal, and a printer controller which forms print image data from the printing data transferred from the external apparatus the image forming apparatus being connectable to an original-reading device which outputs reproduction image data by reading an image of an original in response to the data transmission synchronization signal, comprising:

receiving the reproduction image data from the original-reading device;

receiving the print image data from the printer controller;

receiving the data transmission synchronization signal from the engine controller;

selecting one of the reproduction image data received from the original-reading device and the print image data received from the printer controller;

relaying the selected image data to the engine controller;  
selectively controlling the original-reading device based on the received data transmission synchronization signal when the reproduction image data is selected; and  
selectively transmitting the received data transmission synchronization signal to the printer controller when the print image data is selected.

78. (Previously Presented) The method according to claim 77, wherein when there is a request to transmit the reproduction image data from the original-reading device to the engine controller while the print image data from the printer controller is being transmitted to the engine controller, said selectively transmitting step is interrupted and said selectively controlling step is performed.